CRANE

UNI-CHEK®

High Performance Check Valves

CRANE®

Energy Flow Solutions

Valves for Backflow Prevention

In almost every piping system, there is a need for backflow prevention. Most piping systems utilize pumps or compressors to generate needed pressure for movement of line fluids or gases. When rotating equipment stops, flow reversal or backflow occurs. Check valves are used to stop backflow and protect rotating equipment or other mechanical devices from the sudden backflow surges that may occur.

To satisfy your needs, specify Crane Valves—the worldwide leader of valves manufactured for the prevention of backflow.

Why Wafer Check Valves?

Wafer check valves are preferred because of their compactness, ease of installation and lower initial costs when compared to traditional flanged swing checks. These key reasons make Uni-Chek a popular choice for systems designers. There are additional benefits, such as lower costs for shipping, storage and maintenance.

Temperature Ratings

Seal	Max. Temperature
Metal/Stainless Steel	450˚F (230˚C)*
Viton	400˚F (204˚C)
Nitrile	250˚F (121˚C)
EPDM	300˚F (150˚C)
Neoprene	210˚F (100˚C)
PTFE	450˚F (230˚C)
Aflas	400˚F (204˚C)

*Max temperature due to internal components.

CV and Opening Pressure

Valve Size in (mm)	CV	Opening Pressure Differential in WC (mmWC)	psi	Bars
2 (50)	62	5.95 (151)	0.215	(0.015)
2½ (65)	109	4.50 (114)	0.163	(0.011)
3 (80)	166	3.76 (95)	0.136	(0.009)
4 (100)	318	3.18 (81)	0.115	(0.008)
5 (125)	471	2.58 (65)	0.093	(0.006)
6 (150)	720	2.12 (54)	0.077	(0.005)
8 (200)	1384	2.34 (59)	0.085	(0.006)
10 (250)	2298	2.25 (57)	0.081	(0.006)
12 (300)	4153	2.00 (51)	0.072	(0.005)
14 (350)	4984	1.60 (41)	0.058	(0.004)
16 (400)	8307	1.00 (25)	0.036	(0.002)
18 (450)	11906	0.95 (24)	0.034	(0.002)
20 (500)	16059	0.90 (23)	0.032	(0.002)
24 (600)	22705	0.82 (21)	0.030	(0.002)
30 (750)	47071	0.65 (17)	0.023	(0.002)
36 (900)	53993	0.60 (15)	0.020	(0.001)

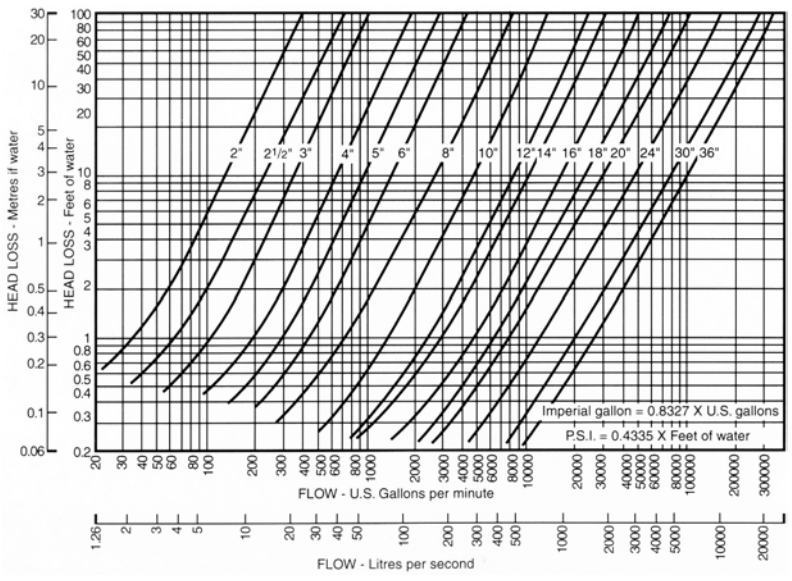
Features and Benefits

Users find the single disc Uni-Chek valves attractive because they provide unobstructed flow paths, are spring-assisted and less expensive than the traditional bolted cap swing check valves. In addition, they have pressure drop comparable to swing check valves. The Crane Uni-Chek offers these features and benefits:

- **Market Needs**—available in sizes 2" (50mm) through 36" (900mm), and pressure classes to meet ASME, BS, DIN, AS, JIS and ISO standards.
- **Compactness**—enabling installation in restricted spaces not possible with conventional swing check valves.
- **Lightweight**—making them easier to handle and install, with less weight to support, eliminating expensive support systems.
- **Variety of Materials**—versatility for many services satisfies more application needs.
- **Installation**—wafer design bolts between flanges using one set of studs. Saves time and installation cost.
- **Lower Cost**—10% to 20% the weight of conventional swing checks saves money in initial cost, with minimum maintenance design.
- **Single Disc–Spring Closure**—provides unobstructed flow, bubble-tight O-ring seal, with good dynamic response to reduce damaging water hammer.
- **Versatility**—providing optional features, including external shaft with counterweight or backflush lever, position indicator, limit switches and external springs.

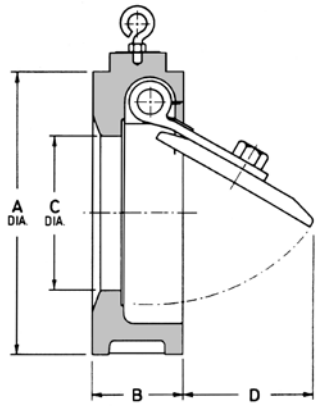
Note Uni-Chek valves are not intended for use in reciprocating compressor service.

Pressure Loss (Horizontal Flow)



Dimensional Information

Uni-Chek



ASME Class 125

size		A		B		C		D		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lbs.	kg.
2"	50	4⅛	105	1¾	45	1⁵⁄₁₆	33	1⅛	29	3.7	1.7
2½"	65	4⅞	124	1⅞	48	1¹¹⁄₁₆	43	1³⁄₁₆	30	5	2.3
3"	80	5⅜	137	2	51	2⅛	52	2³⁄₁₆	56	6.6	3
4"	100	6⅞	175	2¼	57	3	76	2¹⁵⁄₁₆	75	11	5
5"	125	7¾	197	2½	64	3¾	95	3¾	95	16	7.3
6"	150	8¾	222	2¾	70	4¾	121	4½	114	20	9
8"	200	11	279	2⅞	73	6⁷⁄₁₆	164	6⅛	156	32	14.4
10"	250	13⅜	340	3⅛	79	7⅝	194	7⅜	187	52	23.4
12"	300	16⅛	410	3⅜	86	9½	241	8¾	222	77	35
14"	350	17¾	451	4¼	108	10½	267	9	229	154	70
16"	400	20¼	514	4¼	108	12½	318	9¾	248	170	77
18"	450	21⅝	549	4¼	108	14	356	11¾	299	203	92
20"	500	23⅞	606	5½	140	15¼	387	12¾	324	298	135
24"	600	28¼	718	6	152	19	483	15¼	387	452	205
30"	750	34¾	883	6	152	23	584	20¾	527	—	—
36"	900	41¼	1048	6	152	29	737	25	635	—	—

ASME Class 150

size		A		B		B*		C		D		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs.	kg.
2"	50	4⅛	105	2⅜	60	1¾	45	1⁵⁄₁₆	33	½	13	5.5	2.5
2½"	65	4⅞	124	—	—	1⅞	48	1¹¹⁄₁₆	43	—	—	—	—
3"	80	5⅜	137	2⅞	73	2	51	2⅛	52	1⁵⁄₁₆	34	10	4.5
4"	100	6⅞	175	2⅞	73	2¼	57	3	76	2⁵⁄₁₆	59	16	7
5"	125	7¾	197	—	—	2½	64	3¾	95	—	—	—	—
6"	150	8¾	222	3⅞	98	2¾	70	4¾	121	3⅜	86	31	14
8"	200	11	279	5	127	2⅞	73	6⁷⁄₁₆	164	4	102	49	22
10"	250	13⅜	340	5¾	146	3⅛	79	7⅝	194	4¾	121	82	37
12"	300	16⅛	410	7⅛	181	3⅜	86	9½	241	5	127	124	56
14"	350	17¾	451	7¼	184	4¼	108	10½	267	6	152	176	80
16"	400	20¼	514	7½	191	4¼	108	12½	318	6½	165	220	100
18"	450	21⅝	549	8	203	4¼	108	14	356	8	203	242	110
20"	500	23⅞	606	8⅝	219	5½	140	15¼	387	9⅝	245	372	169
24"	600	28¼	718	8¾	222	6	152	19	483	12½	318	584	265
30"	750	34¾	883	—	—	6	152	23	584	—	—	—	—
36"	900	41¼	1048	—	—	6	152	29	737	—	—	—	—

* Optional for short pattern valve, S

AS Table E (BS Table E)

size		A		B		C		D		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	lbs.	kg.
2"	50	3⅞	98	1¾	45	1⁵⁄₁₆	33	1⅛	29	3.7	1.7
2½"	65	4⅜	111	1⅞	48	1¹¹⁄₁₆	43	1⅛	29	5	2.3
3"	80	5⅛	130	2	51	2⅛	52	2³⁄₁₆	56	6.6	3
4"	100	6⅜	162	2¼	57	3	76	2¹⁵⁄₁₆	75	11	5
5"	125	7⅝	194	2½	64	3¾	95	3¾	95	16	7.3
6"	150	8½	216	2¾	70	4¾	121	4½	114	20	9
8"	200	10¾	273	2⅞	73	6⁷⁄₁₆	164	6⅛	156	32	14.4
10"	250	13¼	337	3⅛	79	7⅝	194	7⅜	188	52	23.4
12"	300	15⅛	384	3⅜	86	9½	241	8¾	222	77	35
14"	350	17⅝	448	4¼	108	10½	267	9	229	154	70
16"	400	19⅝	498	4¼	108	12½	318	9¾	248	170	77
18"	450	22⅛	562	4¼	108	14	356	11¾	299	203	92
20"	500	24⅜	619	5½	140	15¼	387	12¾	324	298	135
24"	600	28⅝	727	6	152	19	483	15¼	387	452	205
30"	750	32¼	895	6	152	23	584	20¾	527	—	—
36"	900	41¾	1060	6	152	29	737	25	635	—	—

ASME Class 300

size		A		B		B*		C		D		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs.	kg.
2"	50	4⅜	111	2⅜	60	1¾	45	1⁵⁄₁₆	33	½	13	6.7	3
2½"	65	—	—	—	—	1⅞	48	1¹¹⁄₁₆	43	—	—	—	—
3"	80	5⅞	149	2⅞	73	2	51	2⅛	52	1⁵⁄₁₆	34	13	5.8
4"	100	7⅛	181	2⅞	73	2¼	57	3	76	2⁵⁄₁₆	59	17	7.5
5"	125	—	—	—	—	2½	64	3¾	95	—	—	—	—
6"	150	9⅞	251	3⅞	98	2¾	70	4¾	121	3⅜	86	36	16.2
8"	200	12⅛	308	5	127	2⅞	73	6⁷⁄₁₆	164	4	102	53	24
10"	250	14¼	362	5¾	146	3⅛	79	7⅝	194	4¾	121	88	40
12"	300	16⅝	422	7⅛	181	3⅜	86	9½	241	5	127	143	65
14"	350	19⅛	486	8¾	222	4¼	108	10½	267	4½	114	210	95
16"	400	21¼	540	9⅛	232	4¼	108	12½	318	4¹¹⁄₁₆	124	275	125
18"	450	23½	597	10⅜	264	4¼	108	14	356	5⅝	143	304	138
20"	500	25¾	654	11½	292	5½	140	15¼	387	6¾	171	462	210
24"	600	30½	775	12½	318	6	152	19	483	8¾	222	754	342

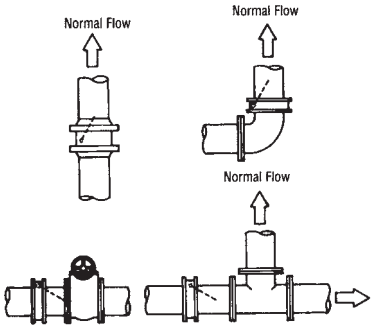
* Optional for short pattern valve, S

The Uni-Chek valve installs between two pipe flanges. The body is flangeless and is centered in line by the surrounding flange bolts. Correct selection of materials and installation will ensure trouble free operation.

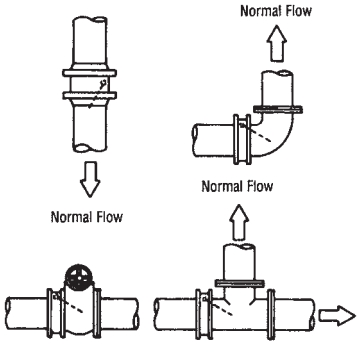
CONSIDER THE FOLLOWING:

- Check that the pipe flange drilling complies with the valve tag specification.
- Flow direction is indicated by an arrow on the valve body or name plate.
- On horizontal installations, the valve tag should always be at the top.
- Flow should always be upward on vertical installations. (Consult factory)
- The valve reaches the fully open position when the disc contacts the inside diameter of the pipe. Care should be taken when non-standard or lined pipe is used.
- Allow a downstream length of straight pipe equal to one pipe diameter before installing other valves or pipe bends, tees etc.

Acceptable



Avoid These

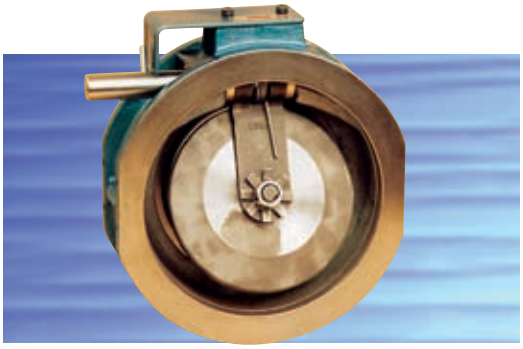


- Each piping system has a unique geometry which should be evaluated whenever the liquid media velocity exceeds 8 feet/second (2.4 m/sec) through a swage or expansion (15° or greater included angle) directly upstream of the valve. A minimum of five (5) pipe diameters distance should be maintained between the valve and the pump discharge and pipe fittings (swages or expansion).
- Avoid manifolds where a pump discharges directly into another pump discharge.

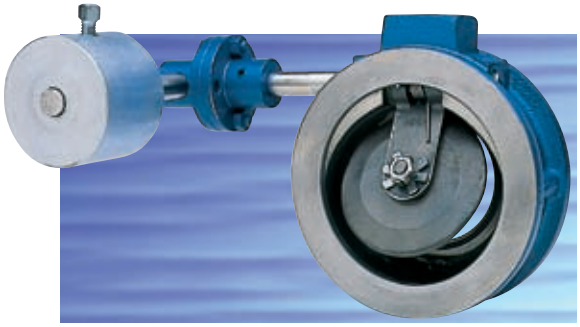
MAINTENANCE PRECAUTIONS

Due to the low wearing of working parts and simple robust construction, the valve should not require attention for several years in normal service. However, if the valve is installed on critical applications such as sanitary isolation, it is considered prudent to make more frequent inspections. Valves subject to high frequency of operation may require spring replacement at earlier intervals. This becomes apparent when valve closure is noisy.

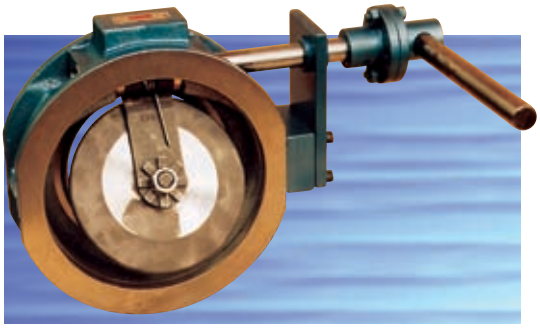
CHECK VALVE SHAFT OPTIONS



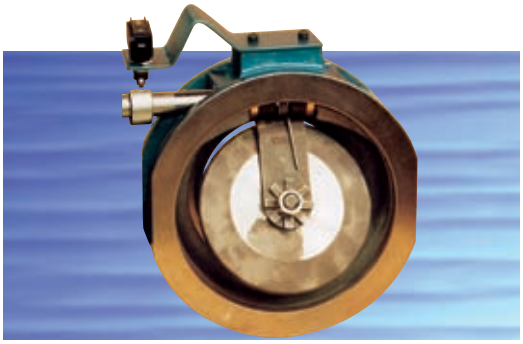
WITH OPEN/SHUT INDICATOR



COUNTERWEIGHT



WITH BACKFLUSH LEVER
(left hand option shown)



MICROSWITCH

Ordering Information

24"	12	A	–	1	3	2	0	–	2	–	0
Valve Size	Pressure Class	Flange		Body Material	Disc Arm & Pin Material	Seal & Spring Material	End Connection		Shaft Option		Coating Option

Description: 24" Pressure Class 125, ASME Flange, Cast Iron Body, 316S.S. Disc Arm & Pin, Nitrile Seal, 316S.S. Spring, Flat Smooth Face, External Lever and Counterweight, Manufacturing Standard Coating.

Valve Size

Nominal valve sizes are expressed in inches or millimeters.

In inches: For use with ASME, API and BS flange standards.

In millimeters: For use with AS, DIN or JIS flange standards. (size preceded by "M" for DIN, "J" for JIS and "A" for AS with PN number shown as pressure class).

Pressure Class

Code	Class
12	125
15	150
30	300
10-16	DIN or JIS

S-Optional prefix for class 150 and 300 short pattern (S15, S30). Refer to Table B* dimensions.

Flange

Code	Flange
A	ASME
E	AS 2129 / BS 10 – Table E

Body Material

Code	Material
0	Carbon Steel to ASTM A216 Gr. WCB
1	Cast Iron to ASTM A126 Class B
2	316 Stainless Steel to ASTM A351 Gr. CF-8M
3	Low Temperature Steel to ASTM A352 Gr. LCB

Disc, Arm and Pin

Code	Material
3	316 Stainless Steel

Seal and Spring Material

Code	Material
0	Same as body material, Inconel X Spring
1	316S.S Weld Overlay, Inconel X Spring
2	Nitrile, 316S.S. Spring
3	Viton, 316S.S. Spring
4	EPDM, 316S.S. Spring
5	Neoprene, 316S.S. Spring
6	PTFE, 316S.S. Spring
7	Aflas, 316S.S. Spring

End Connection

Code	Description
0	Flat-Smooth 125 AARH
1	Serrated Per ASME B16.5

Shaft Option

Code	Description
0	No Option
1	External Lever
2	External Lever and Counterweight
3	Visual Open/Closed Indicator
4	Microswitch
5	External Spring

L-Suffix for left hand option (1L, 2L, 3L, 4L, 5L), consult factory.

CAUTION: external options may interfere with installation on some sizes, consult factory.

Coating Option

Code	Description
0	Manufacturers Standard
1	Internal Solventless Epoxy
2	External Solventless Epoxy
3	Internal and External Solventless Epoxy

UNI-CHEK®

Global Headquarters
9200 New Trails Drive, Suite 200
The Woodlands, Texas 77381-5219
Tel: +1-281-298-5463
Fax: +1-281-298-1920

North America Operations
9860 Johnson Road
Montgomery, Texas 77316-9494
Tel: +1-936-588-4447
Fax: +1-936-588-4427

Australian Headquarters
322 Settlement Road
Thomastown, Victoria Australia 3074
Tel: 61-39-465-2755
Fax: 61-39-466-1365

United Kingdom Operations
6 Alexander Road
Cregagh, Belfast BT6 9HJ
Tel: 441-2890-704222
Fax: 441-2890-401582

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Crane Energy Flow Solutions

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